

NASA TECH BRIEF

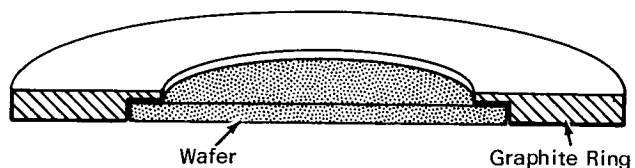
Marshall Space Flight Center



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Shielding Method for Polycrystalline and Epitaxy Growths

A new technique prevents silicon wafers from adhering to the susceptor following silicon epitaxial deposition. During the epitaxial growth process, the silicon forms deposits on the host wafer, on the



susceptor, and on the boundary between them. The wafers adhere to the continuous layer of deposited silicon and have a tendency to crack when the wafer and susceptor are cooled. Conventional processing used to prevent cracking is expensive and time consuming. In addition, silicon undergrowth has been a major problem in fabrication processes such as those involving dielectric isolation.

With the new procedure, an annular ring of graphite or other refractory material (see fig.) is placed around the wafer during the epitaxial deposit. Silicon is deposited on the ring, the susceptor

and the exposed portion of the wafer. The ring breaks away cleanly from the susceptor and the silicon wafer, even when the coating is as thick as 15 mils, and no silicon undergrowth occurs.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
Code A&TS-TU
Marshall Space Flight Center
Huntsville, Alabama 35812
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Patent status:

Title to this invention has been waived under the provisions of the National Aeronautics and Space Act (42 U.S.C. 2457 (f)), to TRW, Inc.

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